UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
NGUYEN, STEVEN H D

ART UNIT	PAPER NUMBER
2665	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/747,384	JOHNSON ET AL.
	Examiner	Art Unit	
	Steven HD Nguyen	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>18 June 2004</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-7,10 and 13-27</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1,2,4-7,10 and 13-27</u> is/are rejected.

7) ☒ Claim(s) <u>3</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1.   Claims 10 and 24 are objected to under 37 CFR 1.75(c), as being of improper dependent

form for failing to further limit the subject matter of a previous claim. Applicant is required to

cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or

rewrite the claim(s) in independent form. These claims are depended on a cancelled claim. The

examiner assumes that they depends on claim 7.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 1-2, 4-7, 10, 13-15, 17-19 and 21-27 are rejected under 35 U.S.C. 102(b) as being

anticipated by Dobbins (USP 5509123).

Regarding claim 1, Dobbins discloses (Figs 1-17 and col. 1, line 5 to col. 29, line 57) a

method comprising performing identification and decomposition of operations performed by

underlying hardware to process a packet; forming software objects by abstracting the

identification and decomposition of the operations into the software objects, such that the

software object encapsulate and represent functionality performed by underlying hardware to

process a packet; and creating an object-oriented programming model using the software objects,

such that the software object enable programming of underlying hardware to process packets as

programmed using the object-oriented programming model (Fig 3-5 discloses a router has a

software for generating the software objects that underlying the hardware, See fig 3, Ref 232-234

and using these software object to create an objected oriented model to process the data packet

for routing between the network such LAN and internet and forming a direct graph; See col. 2,

lines 5-50, col. 4, line 45 to col. 5, line 52, col. 6, lines 39-67, col.. 7, lines 40 to col. 8, line 67).

Regarding claim 2, Dobbins discloses (Figs 1-17 and col. 1, line 5 to col. 29, line 57) a

method for selecting one or more software objects from an object-oriented programming model;

programming the one or more selected software objects to perform a desired packet processing

functionality; and connecting the one or more programmed software objects to form a directed

graph of packet flow to complete definition of the desired packet processing functionality such

that and underlying hardware is directed to process packets in accordance with the desired

packet processing functionality (Fig 3A, the link between Ref 232-234 are used to connect the

software object to form a direct graph for processing the data packet, See col. 2, lines 5-50, col.

4, line 45 to col. 5, line 52, col. 6, lines 39-67, col.. 7, lines 40 to col. 8, line 67).

Regarding claim 5, Dobbins discloses (Figs 1-17 and col. 1, line 5 to col. 29, line 57) the

forming the software objects further comprises using as the one or more software objects a first

stage object to define a physical interface and packet framing, a second stage object to direct

filtering and matching algorithms on packets, a third stage object to direct packet flow policy, a

fourth stage object to direct packet routing to scatterer object outputs, a fifth stage object to

direct packet collecting and routing scattered packets; an sixth stage object to direct packet

modification, a seventh stage object to direct packet flow policy, and an eighth stage object to

direct gathering of statistical information regarding packets and packet flows (Fig 3, Ref 232-

234, frame object, col. 12, lines 38-62).

Regarding claim 6, Dobbins discloses (Figs 1-17 and col. 1, line 5 to col. 29, line 57) the

one or more software objects each include one or more inputs and one or more outputs enabling

formation of compositions of objects sharing a common interface to direct packets processing as

a group of software objects and to form directed graphs of software objects to direct packet data

flow through the packet forwarding hardware (Fig 3A 203 and 237 of 204, See col. 2, lines 5-50,

col. 4, line 45 to col. 5, line 52, col. 6, lines 39-67, col.. 7, lines 40 to col. 8, line 67).

Regarding claims 7, 13, 15, 17, 19, 22 and 25, Dobbins discloses (Figs 1-17 and col. 1,

line 5 to col. 29, line 57) an apparatus comprising a network processor; and a memory coupled to

the processor the memory to load a directed graph of programmed software objects to direct the

processor to process packets in a manner specified using an object-oriented model and compiled

to produce the directed graph of programmed software objects (Fig 3B, the routing device

includes a processor for loading the routing application and generating the software objects and

connecting the software objects in order to establish objected oriented function for performing a

routing of the data packet by using the established objected oriented function, See col. 2, lines 5-

50, col. 4, line 45 to col. 5, line 52, col. 6, lines 39-67, col.. 7, lines 40 to col. 8, line 67).

Regarding claims 4, 10, 14, 18 and 26, Dobbins discloses (Figs 1-17 and col. 1, line 5 to

col. 29, line 57) the directing underlying hardware further comprises relaying requests from the

software objects contained in the direct graph to underlying packet forwarding hardware in

accordance with a desired packet processing functionality; and performing packet processing by

the packet forwarding hardware in response to the software object requests, such that the directed

graph of programmed software objects control packet data flow through the packet forwarding

hardware (Fig 4, the objects is loaded to request the hardware to process the data packet for

routing; See col. 2, lines 5-50, col. 4, line 45 to col. 5, line 52, col. 6, lines 39-67, col.. 7, lines 40

to col. 8, line 67, it is inherently disclosed the software objects communicates with the hardware

for processing the data packet and control the routing).

Regarding claims 21, 23-24 and 27, Dobbins discloses (Figs 1-17 and col. 1, line 5 to col.

29, line 57) each software object within the directed graph performs a data-path packet

processing task functionality, such that the directed graph of programmed software objects

performs a plurality of data-path packet procession tasks within a single device (Fig 3A the

software object is performed within a single device for perform a path of processing the packet;

See col. 2, lines 5-50, col. 4, line 45 to col. 5, line 52, col. 6, lines 39-67, col.. 7, lines 40 to col.

8, line 67, col. 21, lines 30-67).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claims 16 and 20 rejected under 35 U.S.C. 103(a) as being unpatentable over Dobbins in

view of Cain (USP 6754219).

Regarding claims 16 and 20, Dobbins fails to disclose the processor is comprises an application specific interfaced circuit. In the same field of endeavor, Cain discloses a router, which includes a ASIC (See col. 27, lines 13-22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply an ASIC as disclosed by Cain into the router of Dobbins in order to provide a scalable network routing device.

Allowable Subject Matter

6.   Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Dobbins fails to disclose the connecting the one or more programmed software objects further comprises selecting a first stage object as an input port of the directed graph to direct a physical interface and packet framing; selecting a second stage object coupled to the first stage object to direct filtering and matching algorithms on packets; selecting a third stage object coupled to the second stage object to direct routing of packets to one or more third stage object outputs; selecting a fourth stage object coupled to an output from the one or more third stage object outputs to direct gathering of statistical information regarding packets and packet flows; selecting an fifth stage object coupled to an output from the one or more third object outputs to direct packet modification; selecting a sixth stage object coupled to an output from the one or more third object outputs to direct packet routing to a sixth stage object output; and selecting a final stage object as an output port of the directed graph, the final stage object

coupled to the sixth object output.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven HD Nguyen whose telephone number is (571) 272-3159. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy D Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Steven HD Nguyen
Primary Examiner
Art Unit 2665
11/23/04